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THE SALMON CANNING INDUSTRY OF THE PACIFIC COAST

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Due to the wide distribution of their breeding grounds thruout the northern hemisphere, salmon have been known widely and esteemed as food for centuries. The ease with which they can be taken during the spawning season (Fig. 1) has contributed to their use by man wherever they are found. Thus the modern salmon canning industry owes its present world-wide consuming public, in part, to habits rooted in antiquity.

THE ATLANTIC SALMON

Of the two major bodies of water along the shores of which salmon are taken commercially the least important is the North Atlantic, for altho salmon are found along both its American and European shores the breeding grounds are scanty compared to those of the Pacific. Moreover their relative closeness to large centers of population has contributed to depletion of the supply thru over-fishing. Most Atlantic salmon now reaches the consuming public as fresh fish. In the United States the Atlantic salmon has become almost extinct, territorial waters yielding but 88,000 pounds in 1930.[1] Canada, the main commercial source of supply produced in the same year 6,448,000 pounds, yet this was but 3 per cent of the total Canadian salmon catch, the take of Pacific salmon in British Columbia for the same period amounting to 229,621,300 pounds.[2]

THE PACIFIC SALMON

The habitat of the Pacific salmon on the western coast of North America has been more favorable to the uninterrupted survival of the species. Altho runs occur as far south as San Francisco Bay, it

[1] Fishery Industries of the U.S., 1931. U. S. Department of Commerce.
[2] Fisheries Statistics of Canada, 1930. Dominion Bureau of Statistics.

is largely from the Columbia River north that the ideal breeding conditions occur. Much of the coast is broken by fiords and bays, with long branching river systems finding their way into the interior where hundreds of small lakes and streams afford excellent spawning conditions. Numerous islands off the coast provide other advantageous breeding locations.

FIG. 1. Salmon on the spawning beds—an easy prey for even unskilled fishermen. Courtesy, U. S. Bureau of Fisheries.

Early visitors to the coast found salmon serving as the principal food of a number of Indian tribes, but the Indians were too few to make serious inroads on the vast supply of fish. The white man realized the commercial possibilities, and early shipments of pickled salmon were made by the Russians from Alaska,[3] while not later than 1835 the Hudson Bay Company exported salted Pacific salmon from their western posts to Hawaii and Asia.[4] Large scale exploita-

[3] John N. Cobb. Pacific Salmon Fisheries. U. S. Department of Commerce, 1928.
[4] The Salmon Fishery of British Columbia. Department of Fisheries of Canada.

tion awaited the establishment of more favorable transportation between the Coast and centers of population, the growth of a labor supply sufficient to develop a large-scale industry, and the increasing use of the tin can as a food container. Introduced into the United States about 1835, the tin can had come into use on the Atlantic coast as a container for both salmon and lobster some time before the first salmon cannery on the Pacific coast began operations on the Sacramento River in 1864. Thus the background already established in the East aided the development of the western branch of the industry.

COMPARATIVE IMPORTANCE OF THE INDUSTRY

Today salmon canning heads all American fish canning industries. Out of 412 fish canneries in the United States in 1931, there were 207 engaged in canning salmon accounting for more than 50 per cent of the total production, by value. In the same period 35 salmon canneries were operated in British Columbia. Canadian canned salmon generally accounts for about a quarter of the value of all Canadian fish production, both fresh and canned.

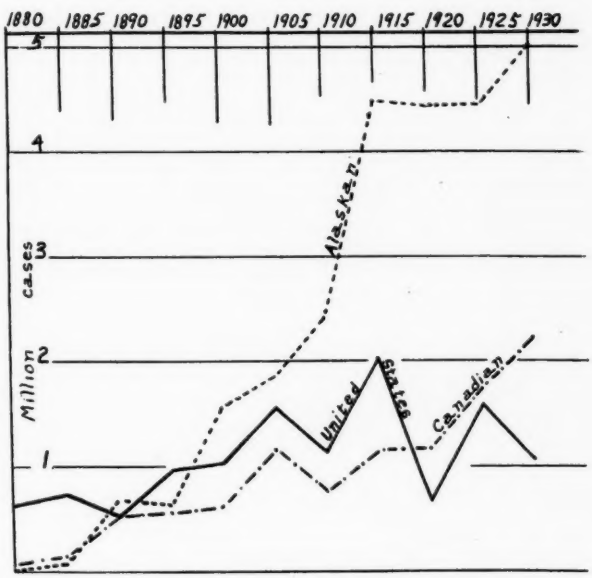


FIG. 2. Comparative growth of salmon pack on the Pacific coast, 1880 to 1930, taken at five year intervals. The annual fluctuations are much greater, due to cyclical fluctuations in the supply and demand. Peak years for Alaska were 1917 and 1926 with packs of 6,605,835 and 6,652,882 cases respectively; for United States, 1917, 2,718,251; for Canada, 1930, 2,221,819.

Both the United States and Canada export more canned Pacific salmon by value than any other form of fishery product. Of our total fishery product export of $11,574,257 for 1931, $3,039,933 was canned salmon. This represented about 11 per cent of the total salmon pack. In 1930, Canadian salmon exports accounted for $6,479,255 of a total of $31,869,350 fishery export, the latter figure including heavy shipments of fresh

fish and lobsters to the markets of the United States. Of the 1930 Canadian salmon pack about 43 per cent was exported but in previous years the proportion shipped abroad was larger.

PROBLEMS OF THE INDUSTRY

The life habits of the salmon afford the salmon canning industry a big advantage by enabling plants to be located at or near focal points where the supply of raw material becomes concentrated. This supply is self-replenishing as the salmon return to spawn in the same streams or river systems in which they were born. The runs are, however, subject to disaster which may occur in the two to seven years at sea. Moreover they are cyclical and hence the annual variation of the size of the runs makes the total pack for the year subject at all times to wide fluctuation. Even during the World War, when the demand for salmon was great this fluctuation was not eliminated, as shown below, and hence may be regarded as a regular hazard of the industry:

TOTAL PACIFIC SALMON PACK DURING FIVE ABNORMAL YEARS

Year	*Pack (In Standard Cases)*
1915	7,649,594
1916	7,703,894
1917	10,223,022
1918	9,607,766
1919	8,014,924

These variations were not much less than in normal times altho total production reached its peak. Under normal conditions it is quite common for the pack to vary from 20 to 40 per cent from one year to the next, while the value of the annual pack is quite as variable.

Taken over the entire life of the industry, however, the general trend up to 1930 was toward greater production. The accompanying chart (Fig. 2) based on the figures for every fifth year is intended to show only the general trend in production. It avoids the annual fluctuations and the abnormal World War period. The comparatively rapid growth of Alaska as the big center of production stands out strikingly. The trend for 1931 altho not shown on the chart is downward with the biggest falling off taking place in British Columbia where the number of canneries in operation dropped from 60 to 35, and the value of the pack decreased from $17,920,474 to $8,128,416 during the year.

The present magnitude of the industry, calling for the use of millions of pounds of salmon annually necessitates measures to regulate the supply of fish. Seventy-three salmon hatcheries engage in restocking, four in Alaska, eleven in British Columbia and sixty-eight in the United States. The canners themselves operate three of these hatcheries to supplement the efforts of the governments. (Fig. 3.)

In Canada, the Fisheries Department has the power to close fish-

FIG. 3. Fortmann Hatchery, Naha Strait, Alaska. One of the salmon hatcheries which helps to maintain a constant supply of fish. Courtesy, U. S. Bureau of Fisheries.

ing in any district for any length of time necessary in its judgment to preserve the runs. The Department has expressed itself as well pleased with the results of this regulation in increasing the size of the runs.

In the international waters lying between the United States and Canada the difficulty of obtaining suitable international legislation has led to the serious depletion of salmon runs frequenting these waters.

Intelligent regulation of the runs and constant restocking by artificial means is necessary to maintain the supply.

TRANSPORTATION AND LABOR

The coast along which canning operations are carried on in addition to providing ideal breeding grounds for the salmon also provides ample harbor facilities. The advantage of cheap water transportation is one of the primary factors which has enabled the in-

dustry to flourish along the entire coast rather than being confined to the vicinity of Puget Sound and the regions south of this. Fuel, too, is readily available near at hand, another advantage. (Fig. 4.)

The most unfavorable factor in the salmon canning industry is the location of so many plants in territory where there is scanty or in some cases no local labor supply. This necessitates the importation of labor to operate the canneries during the season of activity, which seldom exceeds six months, in many cases being shorter. Because of this short season the presence of the cannery is not liable to stimulate the growth of a permanent population from which the labor supply might be drawn. As the canneries operate almost exclusively with cheap labor, with the exception of a small staff of executives, there is not the lure of high wages to draw an eager labor supply. Labor, therefore, must be supplied largely thru recruiting, either by labor contractors or by the canneries direct. The laborers are mostly Chinese, Filipinos, Japanese, Mexicans or Puerto Ricans drawn from the large coastal cities.

This labor shortage combined with the constantly increasing demand for the product early gave the impetus which has resulted in the present high degree of mechanization in the industry. This was especially true when the center of the industry began to shift to Alaska and large canneries were opened there.

The change from a hand to a machine industry is well illustrated by the fact that a cannery packed from 150 to 200 cases a day in the early stages of the industry, while now from 2500 to 4000 cases a day is not unusual. The amount of hand labor has been decreased until in the most modern canneries the salmon pass thru machine after machine in units or lines of production with little work aside from tending the machines being done by hand.

COMPETITION FROM THE ORIENT

Of recent years competition has come to the American producer from the Orient, notably since 1928. The Siberian coast compares fairly favorably with the Pacific coast of North America as a breeding ground for the Pacific salmon. Over six thousand miles of coastal and river salmon fishing territory extend from Chosen to the Arctic Ocean, including the extensive Amur River system.

The Japanese and Russians share these fisheries, with the Japanese having the poorer territorial waters, the southern half of Sakhalin, Hokkaido and the Kuril Islands, but with fishing agreements with the Russians which give them access to the coast. To

offset the poverty of their own waters the Japanese operate a large number of hatcheries.

Altho canneries were operated here shortly before the World War unsettled conditions prevented any real growth of the industry until comparatively recent years, when it has forged ahead rapidly.

FIG. 4. Salmon cannery at Santa Ana, Alaska. The convenient wood supply and the sheltered anchorage are especially well illustrated in this photograph. Courtesy, U. S. Bureau of Fisheries.

The major threat to the American canners appears to be the Japanese.

Canned salmon is not a cheap article. The countries of the Orient in spite of their enormous populations are not good markets for the product because of the low purchasing power of the individual. Therefore instead of developing a home market or seeking an outlet on the nearby mainland of Asia the Japanese have marketed the bulk of their canned salmon in the United States and in Great Britain and other European markets. They have been willing and able to go into these markets and undersell the American and

Canadian producers. As the accompanying chart shows exports rose rapidly in 1929 and appear to be holding their own since. (Fig. 5.)

American producers obtained some protection of their home market in the Smoot-Hawley tariff of June 18, 1930, which laid a 25 per cent import duty on "fish prepared or preserved in immediate containers weighing with contents not more than fifteen pounds each." However with the assistance of the depreciated yen the Japanese, at least for the present, have been able to surmount this barrier and the United States continues to be the best customer for their tinned goods, in which salmon is included.

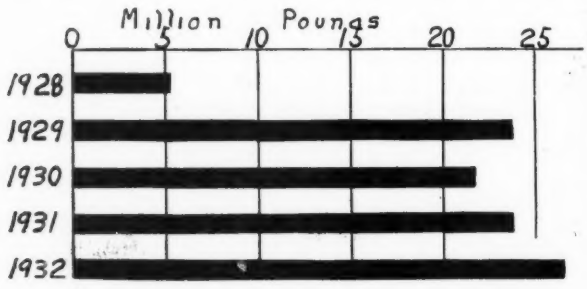


FIG. 5. Japanese exports of canned salmon, 1928 to 1932. The last three months of 1932 have been estimated on the basis of production in previous years. Data from the Annual and Monthly Returns of the Foreign Trade of Japan.

The Russians have "dumped" salmon on the American market to the detriment of the home industry, also. In 1933 in the five and ten cent stores of the F. W. Woolworth Co., in New York City, Russian-packed pink salmon was on sale for seven and one half cents a one-pound can, which was less than the price a pound demanded for fresh caught salmon by the fishermen of the Columbia River at the local canneries.

American canners feel that they are in need of additional legislative protection. Certainly they cannot compete on any price scale such as that mentioned above. The United States is such a big market for salmon that the American canneries need no foreign market to absorb their entire supply, and if no readjustment takes place thru the lowering in value of American currency and the shifting events in the Orient the canners will probably obtain more protection. Canadian canners, too, should be able to protect their Empire market thru trade agreements, so that Oriental competition, altho threatening now, will probably become restricted eventually.

THE SOD HOUSE

DONALD S. GATES
Roanoke College
Salem, Virginia

O, the hinges are of leather
And the windows have no glass,
And the board roof lets the howling blizzard in;
I can hear the hungry coyote
As he sneaks up thru the grass,
In my little old sod shanty on my claim.

The most striking geographic expression in the high plain country between the Missouri River and the Rockies is the sod house. "Of all the phenomena involved in the satisfaction of essential human needs," says Brunhes, in Human Geography, "the habitation is the highest degree geographical—it is especially the rural house which shows best the characteristics of this dependence upon geographical environment."

Slowly from the wind-swept prairies, the sod house is passing away. Altho there are sod houses still occupied and even built, the rapid decline in the surviving members of this emblem of settlement of the lands of western Kansas and vicinity suggests the attempt to gather the essential facts about their construction. What more perfect example of human adaptation to the climate of the western plains region than the sod house—a bit of the prairie itself, uplifted and placed in position to keep out, by its thick walls, the heat of summer and the cold of winter.

In the town of Quinter, Kansas, there is a soddie with electric lights for its inhabitants. School children learned their lessons in a sod school house only a few years ago. There are legion of western folk who can furnish facts from memory of living in sod houses. But there is one soddie now where ten stood a few years ago so it is for those who can obtain them to set down the truths about their construction.

The typical farmer who pushed westward from his log cabin in the wooded lands of Iowa, Missouri and eastern Kansas, met new problems of life as he crossed the hundredth meridian. Along the fertile valleys of the Mississippi and the Missouri there had been thick woods which offered timber in quantity to furnish shelter and fuel for himself and family. But when he drove his covered wagon beyond the settlements at Salina and Hastings there was an in-

creasing distance between the drying prairie creeks, and the trees and shrubs rapidly diminished in number. Except for a scrawling fringe of willow and cottonwood along the banks of half-hearted streams nothing obscured the traveler's vision save the curvature of the earth, and there was nothing from which to build a house save the prairie under his feet.

The architectural scheme of the sod house is repeated with remarkable uniformity on the prairies—a low, squatty outline, of one story, square design, with a roof just slanted enough to shed rain

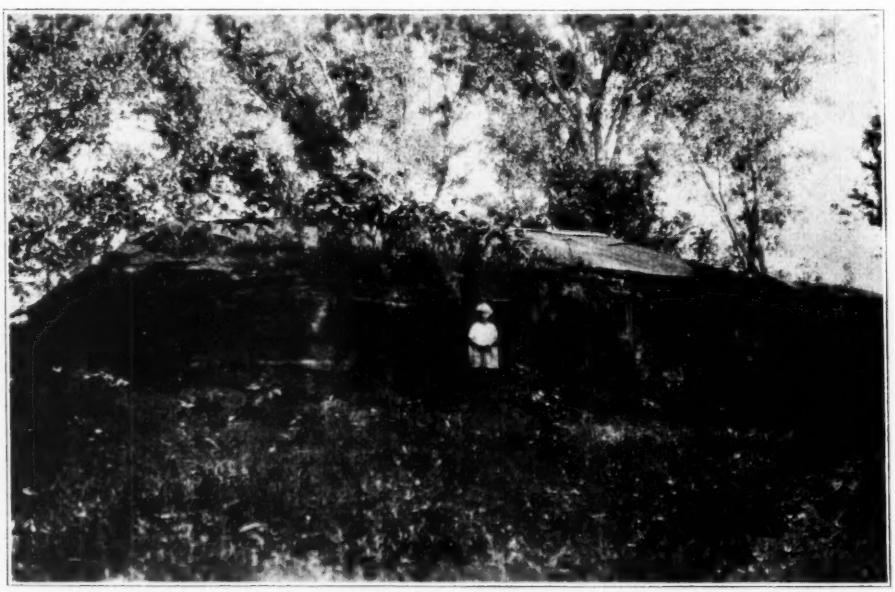


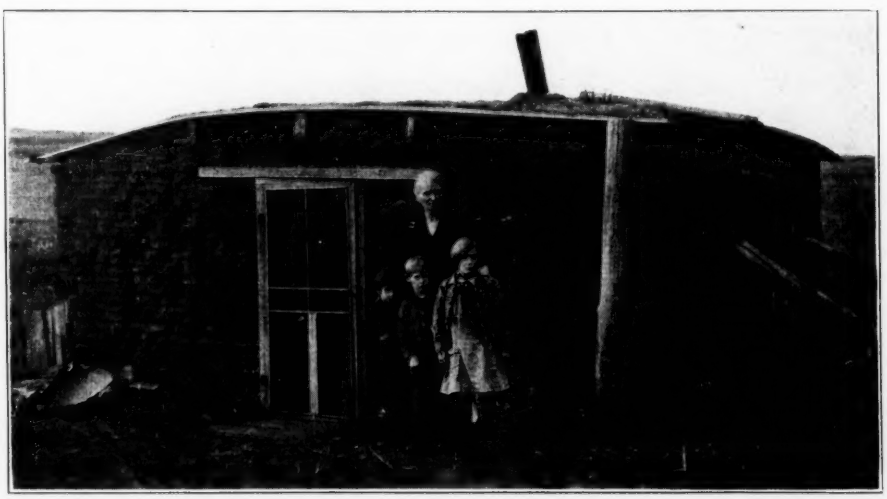
FIG. 1. Perhaps no better appreciation of the solid construction of the sod house can be given than this picture of one over fifty years old, the notation continuing—"I visited in this house last week (October 17, 1931). There were living in it a father, mother and seven children." Logan County, Nebraska.

and snow. Appearing west of the line of native timber, these houses mark the presence of a tough, thickly-rooted buffalo grass sod, the grass taking its name from its stubby and short-stemmed feel and the fact that it not only resembled thus the matted fur of the buffalo, but because it served as the chief food of the animal himself when he roamed the high plain country.

The start of a sod house was a standard "breaker" plow, cutting a piece of sod about four inches thick and about a foot wide. There was also used by some people a frame with a cutter made from a wagon tire, the shape of which was like the letter U, twelve

inches wide, and four inches deeper than the runners to which it was fastened. The ribbon of sod is then cut into two-foot lengths by a squarenosed spade. An ordinary lumber wagon, stripped except for its floor beams, was employed to transport the newly cut sod to the place selected for the house.

The sod lengths were laid around the outside of the planned room. Two sod lengths are laid side by side, thus making a wall about two feet thick. Upon the first layer is laid the second layer, at right angles to the first. When the outer row breaks the lap where



FIGS. 2 and 3, give two approaches to the utilization of the sod houses and the economic life about them. The school teacher, school house and pupils (Fig. 2) were photographed in the spring of 1928. The teacher has a bed and a few cooking utensils in the sod school house and lives there while the school is in session. Her permanent home is eighteen to twenty miles distant.

the two ends of the inner row meet, this is called the "breaking joints." Thus placed the rows will continue upward until the walls are from eight to ten feet in height. In many cases barbed wire was used at the corners in order to reinforce them. When the walls are as high as are desired, they are trued and squared by the same squarenosed spade that was used to cut the sod lengths. A two or three foot width of wall was common, some of the thicker ones tapering as they went up to two feet at the top. One woman says that "we had a place left in the wall where the sod was half left out, so as to make a wardrobe in which to hang clothes." There was seldom mortar between the layers of sod, as they squeezed closely enough together to be air tight. One person reports that "the slabs

were let dry for a few days to harden and were then placed in position as we do cement blocks today."

The common shape of the sod house was rectangular, often built in the form of an "L," 14 x 20, 14 x 28, 14 x 16 and 20 x 40 feet being common, tho there is one sod house pictured 36 x 26, the writer adding "the largest I have ever seen and I have seen a good many."

The use of mortar seems to be optional, but in one case a rich, almost red clay from the banks of the Arkansas river was mixed

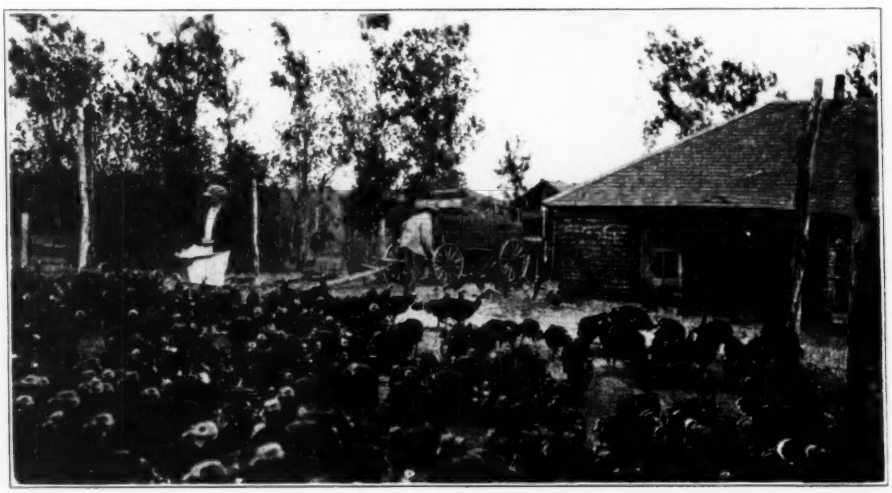


Fig. 3 shows part of a drove of 900 turkeys with the sod house in the background. Included in the picture is the same woman who taught the school shown in Fig. 2. These pictures were taken October 17, 1931. Note that the sod house has acquired a roof of shingles.

with sand and in another case local gypsum or regular mortar was used. The inner walls, and sometimes the outer ones as well, were plastered with lime found locally in hillsides. Hog hair was often used to reinforce the plaster. One woman said that the ceiling of her sod house was made by stretching white muslin across, which with the smooth walls made a clean house. The floors were often bare, with sometimes a buffalo grass mat and in at least one case a hand-braided rug. A curious note concerning the durability of a dirt floor is presented by a school teacher of those days—"in the sod school house, so many restless feet moved on this ground that the walls grew higher as the floor lowered, with the shovelling out each morning of the accumulated dust of the previous day."

The soddies commonly had a box-car type of roof, i.e., the ends were raised to an arc, 2 x 6 planks or 1 x 12 boards were laid across and tar paper was placed underneath a layer of sod, making a water-proof roof. Various supports were used for which recourse was made to the creek. Willow saplings, corn stalks or Russian thistle were used as a foundation for the tar paper and sod. That the results were not always perfect appear from such statements as—"the board roof, slanting one way, let the snow in on my bed" and "the board roof never leaked badly, but the water would some-

FIG. 4. Among the pictures of sod houses in use, this one, of a family visited in September, 1931, gives a picture of the protection now afforded by the present-day soddie.

times run down the sides of the house." Other types of roofs were used occasionally. The mansard roof worked well, and one person reports a gable roof, using 1 x 12 rafters, weighted by rocks. Also a straight comb roof with rubberoid paper served in some cases. The sod was laid grass side out, and frequently blossomed out into renewed vegetative activity when a passing breeze deposited a seed. One writer reports that the sod did not leak if laid perfectly, and another says that at the first rain there was leaking, but none afterward.

A two-roomed soddie seems to have been the general rule. The living-room, dining-room combination containing the iron cook-stove, and a bedroom complete the picture of the interiors of many

sod houses. Evidence is conclusive and frequently presented that with properly sodded roof, lime-sized walls and a clean, dirt floor, the sod house would not betray its humble origin to one inside of it.

It is perfectly clear that with proper living standards, there was every possibility of making the sod house clean, neat and comfortable. Occasional pests appeared—mice, ground squirrels and rats—but there is nothing to make one believe that the problem was greatly different from now, when the house wife uses a trap to catch a mouse or sprinkles borax along the trail of ants. On the contrary, evidence is in favor of the soddie. It was warmer in winter and cooler in summer than frame houses, this being given as one reason for a school teacher returning joyfully to her sod home to study, rather than remain in her wooden school building.

The fuel was for the most part buffalo chips, and similar contributions from the range cattle. It was frequently the duty of the young children to collect these, which burned after the fashion of corncobs—a hot flash of fire.

The verse that heads this article is from a song of the sod house and common reference to the sod house is to be found in the local literature of the prairie. A typical stanza, carrying between its lines the feelings of the singer is:

> I'm looking rather seedy now, while holding down my claim,
> And my victuals are not always served the best,
> And the mice play shyly 'round me as I nestle down to sleep
> In my little old sod shanty in the West.

Even the difference in construction between the old accustomed ways and the new ways is hinted at by the following verse from "My Government Claim."

> Bert Baker is my name and a bachelor I am
> I'm keeping old bach on an elegant plan,
> You'll find me out West in a county of Lane,
> A-starving to death on a government claim.
> My house it is built of the natural soil,
> The walls are erected according to Hoyle,
> The roof has no pitch, it is level and plain
> And I always get wet when it happens to rain.

The inner comforts of the furnishings of a sod house are sung in "The Shakedown in the Soddie," as follows:

> I'd travelled far, 'twas growing late,
> I'd sought in vain for lodging;
> To make it worse a storm was on,
> The lightning I was dodging.

Hello, I called, 'Have you a place
To rest a weary body?'
'You're welcome to the best I have;
A shake-down in a soddy.'

I've slept on fluffy beds of down
All trimmed with doo-dads gaudy,
But the softest bed I ever had
Was the shake-down in that soddy.

HOW TO USE THE TEXTBOOK*

LOULA UPTON
South Highland School, Birmingham, Alabama

INTRODUCTION

Upon being assigned a subject for a talk, like a good student, I went to the library for material. Having been unable to find anything whatsoever upon the subject, I shall be forced to speak from my own experience and observation. Using my own classroom as a laboratory, I have made some interesting discoveries. I find that the children have developed three (to them) practical uses for the geography textbooks. First, there is the old and well-known practice of using the large geography book as a screen to shield the student while eating a bit of candy or reading some forbidden literature. Second, the books are used very successfully to hold the window shades in place when the classroom is darkened for a "picture show." Third, when our so-called adjustable seats refuse to be adjusted, the children use several geographies to build the lower seats up to the proper altitude.

APPLICATION TO TEACHERS

But before we condemn the children, let us see if we, as teachers, are making any better use of the text. In the first place, I wonder how many of us are hiding behind the textbook. Do we not often blame our poor teaching on the text? Are we not inclined to say that the book is too difficult for the grade in which it is to be used, that it is uninterestingly written, that many of its facts and figures are unreliable, and that in view of all its short comings, we should not be expected to do good teaching?

*This paper was presented at the annual meeting of the Alabama State Council of Geography Teachers in Montgomery on March 31, 1933.

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Then, again, I wonder if some of us do not follow the textbook too blindly, thus excluding all light which might enter from some other source. Do we take it as an absolute authority and an infallible guide, never questioning, never verifying its statements? Do we consider it to be all-sufficient, thus eliminating any necessity for the use of supplementary material or any form of research on the part of the students?

Let us hope that none of us use the text in either of these ways, but rather in the third manner mentioned; namely, as a foundation or base upon which to build.

IDEAL SITUATION NOT YET ATTAINED

There are many geography teachers who do not need a textbook, but there are perhaps more who would find it quite difficult, if not impossible, to do successful teaching without some basal text. In an ideal situation, where each child had access both at home and at school to a well-equipped library, with a competent person at each place to direct his research, a skilled teacher could dispense entirely with the textbook. But, unfortunately, we are, as yet, far from having attained unto that Utopia. In the meantime, until we have reached that stage of perfection, let us strive, like the king's son in Edward Rowland Sill's poem on opportunity, to seize the broken sword and do battle to the best of our ability.

POOR TEACHING NOT THE FAULT OF THE TEXT

I do not believe that I should get an argument from any geography teacher if I should make the statement that most of our geography texts are written in a language which is too difficult for the average child to understand without assistance. But if we will make comparisons between our modern texts and those of twenty-five, or even ten, years ago we shall see what a great advance has been made in the matter of simplifying and adjusting the textbook to the child.

Granting that the book is difficult, are we going to treat this circumstance as a stumbling block or as a challenge? Much can be done by the teacher to simplify the language of the text by frequent drill on the more difficult words and phrases, by using certain words of frequent occurrence for spelling or language work, or merely by employing the words in her own conversation with the children. A child will pass over a word a number of times in

his reading, making no effort to discover its meaning; but let him hear the word used, and immediately his curiosity is aroused.

In the textbook which we are now using, the authors frequently speak of "luxuriant vegetation." I have been both amused and chagrined by the trouble this one phrase gives the children in their study. Rarely, if ever, does one pronounce the two words correctly, and then he seems to have no idea of their meaning. Recently I tried the experiment of using these words in some of my discussions of the lessons. After having employed the phrase a few times, you can imagine my feeling of triumph, when upon asking a sixth-grade girl the effect of the heavy rainfall on our Pacific coast, I received the reply, "It produces a luxuriant vegetation."

Psychologists tell us that only those things of which we have no knowledge are uninteresting, and that as soon as we know a little about a subject we become interested in learning more about it. This is certainly true of geography. If we can make a connection between the subject matter of the lesson and some recent movie, current happening, or a story familiar to the class, we find that the text becomes a living subject. Recently my fifth-grade class studied Mexico rather indifferently in the textbook. We turned aside for a few days to read the story of "Manuel in Mexico," and then went back to the text for a review. The children were greatly interested in discovering similarities between the two accounts, and would frequently exclaim, "Why, that's just like Manuel," or "Manuel rode a burro," or "Manuel ate tortillas," etc. They did not then find the text the least bit dry or uninteresting.

Concerning the charge that the facts and figures of our texts are unreliable, I believe all will agree that there is some justification for this criticism. We Birmingham teachers have sometimes had to use textbooks of three different editions at the same time. At first this seemed a great handicap. One child would quote his text as saying that a place had a certain population and immediately another would rise to contradict him, while a third would vehemently assert that both were wrong. When the children realized that the book had been twice revised, and that each edition gave the figures as they were at the date of publication, they no longer were satisfied with any statistics except the latest available. This disagreement of the texts has led to the formation of the very desirable habit of using reference material, or, as the history teacher says, "going to the sources." A recent copy of the World Almanac is kept always handy and is frequently consulted to see what

changes have occurred since our latest text was published. Using these facts as a basis, the children frequently make predictions as to what changes will occur in the future.

Thus, thru a seeming defect, is being impressed one of the greatest truths of modern geography—that only one thing is certain, and that is *change*. As one writer has aptly expressed it, "No man bathes twice in the same stream." We are not living in a static world, and no geography book can be absolutely up-to-date, for from the time it goes to press until it is released changes will have occurred which cause some of its statements to be untrue. Anyway, we need to dispel some of the superstitious reverence for the printed page and to teach the children that the fact that a thing is printed is no guarantee of its absolute infallibility.

TEXTBOOK NOT ALL-SUFFICIENT

The teacher, if such there be, who does depend entirely upon the text for all her teaching material, trusting it as an unfailing guide and complete source, has no place in a modern school system. She is best described by the old story of the teacher, who, on finding a boy seemingly idling his time away, asked, "What are you doing?" When the boy replied that he was "just thinking," she answered in a tone of great indignation, "Thinking? Don't you know this is no place to think? This is a school!"

REALIZATION OF OBJECTIVES THRU USE OF TEXT

We said a moment ago that we should use the textbook as a foundation upon which to build. The question might legitimately be asked, "To build what?" A foundation is a most necessary part of a building, but it is not always possible to judge by a look at the foundation just what sort of structure is to be raised upon it. That depends upon the individual builder.

If you will read almost any educator's discussion of objectives of education, you will find mention of the words *knowledge, habits, skill,* and *attitudes*. How can these words be applied to the use of the textbook in geography?

There can be no doubt that even the poorest textbook can supply us with an abundance of information or knowledge. This knowledge can be secured not alone from the reading matter, but from the many, and in some cases, excellent pictures. We should never pass over lightly any opportunity to use visual aids, for it is well known that those impressions received thru the eye are far more

lasting than those received thru the ear. If we will use, to the best advantage, the illustrations given us by the textbook, we shall find in them a vast amount of geographical material. But we need not expect a child to see everything in a picture by a casual glance. His attention should be directed to the more important features of the picture by carefully planned, thought-provoking questions.

But more important than the knowledge attained by a child in the elementary school are the habits which he builds. There is a splendid opportunity for forming habits and developing skills in the proper use of a textbook. For example, the habit of self-reliance is one of the most desirable and yet one of the hardest to inculcate. It is much easier to ask the teacher a question than to find the answer for oneself. No teacher should tell a child anything which he can discover by a reasonable expenditure of his own energy. In my teaching I have tried to make it a rule never to answer a question which is answered by the text, whether it be concerned with the location of a place, the pronunciation of a geographical name, or any fact which is clearly stated. In this way the children have, to a certain extent, formed the habit of using the text for purposes of reference. It is sometimes, of course, necessary to direct the younger child to the specific page or map in order to avoid too great a waste of time on his part or to prevent his becoming discouraged, but no teacher should pronounce geographic names for seventh or eighth grade students, or answer questions for them which need only an understanding of the use of a table of contents, index, or appendix. In so doing she is merely, as Dr. McMurry often expressed it, "helping the child into helplessness."

The habit of careful attention may be developed by requiring accuracy in reporting on information gained from the text or other source material. Here, again, the difficulty of the subject matter may be turned to good account, for it demands a careful reading, whereas easy material is likely to be skimmed and remembered only superficially.

Reference has already been made to the habit of verifying or checking information by the consultation of more recent or reliable authorities. If one is to become a scholar, even in the smallest sense of the word, he can not begin too early to form this habit.

We spoke of attitudes. It is generally agreed that the two chief objectives of all geography teaching are: (1) a permanent interest in the subject, and (2) a sensitiveness to causal relations. The latter of these two may, to a considerable extent, be realized by a

proper use of the text. There is no modern text of which I have knowledge that fails to stress causal relations. The old type of geography was satisfied with a description of the earth and its phenomena, but present-day geographers insist that the "why" is equally as important as the "how" or the "where." We should always direct attention to any causal relationship mentioned in the text, and should constantly seek to assist the students to discover others not specifically stated. Much may be gained in this direction by careful attention to the pictures given in the text. It is not sufficient that the child observe that native huts in the wet tropics are set high above ground upon posts, but he should be led to seek an answer to the question, "Why are they built in this way?" The pictures in any text present many opportunities for the stressing of causal relations.

But to secure a permanent interest—can we expect the textbook to do this for us? I believe that only the most confirmed and hopeless optimist would answer this question in the affirmative. As yet I have never discovered the text which possessed that "Open Sesame" quality. No, I fear we shall have to have access to more than a textbook in order to realize this important objective. Here, perhaps more than elsewhere, does the personality of the teacher count. If she can see in each page of the text a suggestion of an interesting story for parallel reading, a connection with some current event, or an opportunity to enrich the subject with an account of some of her own collateral reading or travel experience, then, and only then, can she expect to endow her students with a permanent interest in the subject.

Geography, more than any other subject in the curriculum, can reach out into other fields and find enrichment. The geography teacher can, without really departing from her subject, borrow from the fields of science, literature, art, history, civics, and world affairs. One who has been successfully taught real geography will have a permanent interest in many phases of the world about him, and will agree with Robert Louis Stevenson that "the world is so full of a number of things, I'm sure we should all be as happy as kings."

THE BANANA GROWERS OF JAMAICA

ERNEST YOUNG
London, England

Note to teacher: The banana grows in most tropical and sub-tropical countries where the rainfall is abundant. Hence the distribution of the fruit is a very wide one. Few countries, however, grow bananas for export. The chief banana exporting countries are in Central America and the West Indies where the natural vegetation is of the equatorial forest type. The leading countries are Jamaica, Costa Rica, and Colombia.

The banana, like the cocoa-bean, grows only in countries that are warm or very warm and where there is plenty of rain. Thus it is found in India, Ceylon, Malaya and the East and West Indies. The West Indian island that exports most bananas is Jamaica.

Jamaica is one of the most beautiful places in the world. It has mountains, streams and waterfalls: it is full of flowers of all sizes, shapes and colors, trees like the coconut and bamboo, and fruits such as oranges, grapefruit, pineapples, and, most important of all, bananas.

The banana tree, as seen in a picture, looks something like a palm but it is really nothing of the kind. The stem is underground and what appears to be a stem is simply the bottom parts of the broad leaves wound tightly round one another. Tho the plant reaches a height of from eight to twelve or even twenty feet, it never has any branches.

The banana has no seeds but the underground stem sends up a number of shoots which can be cut off and planted elsewhere if a new plantation is to be made. Because of the warmth and the moisture the shoots grow so rapidly that in six months they are as tall as a man and in ten months are in flower. Big as they are they need shelter from rough winds which easily damage the thick, juicy leaves.

Each plant bears only one bunch of bananas: this bunch is made up of what are called 'hands,' and each hand has ten to twenty 'fingers' that is, bananas. A good bunch weighs about sixty pounds.

Bananas, like many other tropical plants are grown on big plantations by white men with the help of colored labor, or in small plantations or gardens that belong to the colored man himself. The colored laborers in Jamaica are mostly Negroes whose forefathers were brought as slaves from the west of Africa where we have seen their brothers growing cocoa.

Bananas are always cut before they are ripe even when they are to be eaten in the hot lands where they grow. If they are allowed to ripen on the plant they lose their flavor. Moreover the skin splits and exposes the inside to the attacks of insects.

When it is time to harvest the fruit the bunches are so heavy that they bend over and hang down towards the ground. The harvesting is done by small gangs of men of whom one is called the

FIG. 1. A plantation of young banana trees. Courtesy The West India Committee.

'cutter.' With a knife fastened to the end of a long pole he notches the thick stalk that carries the fruit and so causes it to bend still further. To prevent it coming down with a rush it is steadied by means of poles.

Another member of the gang, the 'backer,' receives the heavy bunch on his shoulder after which the cutter severs it completely from the tree with a big, sharp knife. Behind the cutter are ten to twenty other men, 'headers,' so called because they carry away

their loads upon their heads. They walk quickly, often singing as they go, until they reach a road where there is a little cart drawn by mules or, on big plantations, a little tram line.

By cart or tram the bananas reach the railways that take them to the ships. As they are carried from the train to the loading machine the stems are checked and a bell, like the ticket punch of a bus conductor, rings every time a stem goes on board.

In the ships the fruit is stored in rooms whose temperature can be carefully regulated. In the summer they are cooled and snow can be seen caked on the sides of the refrigerator. In winter, on the contrary, heat has to be supplied to prevent damage by chilling.

Bananas are eaten in other ways than as fruit. There are factories where are made 'banana figs' (pieces of dried banana), 'fig bananas' (whole dried bananas), and even a kind of banana flour.

FIG. 2. Harvesting the crop of bananas. Courtesy, The Imperial Institute

As we have already pointed out two kinds of men, white and black, are concerned with banana production. The white planter forsakes the low land where most of the big plantations lie, and builds his house on the lower slopes of the hills where the heat is less felt.

The white man's house is generally square, built of stone or brick, well raised off the ground to allow the air to flow freely underneath, and approached by a broad flight of steps. Verandas and balconies give shade on at least three sides and can be closed by green blinds to keep out the sun. The floors are black, smooth and polished and loose mats take the place of carpets. Everything possible is done to shut out unwanted heat and light.

FIG. 3. Bringing in the bunches of bananas. Courtesy, The Imperial Institute

The Negroes, on the other hand, live in villages that are merely a collection of shacks and huts where there is very little order. The houses are put down almost anywhere that pleases the builder so that the streets run in and out in all directions.

No two houses are ever quite alike. Some of them are made of heavy grass and thatched with banana leaves; some have a frame-work of bamboo with the walls and roof of palm leaves; some are of mud. At times a man will buy up a lot of wooden packing cases in which goods are sent out from England and build a hut of these. As every box has some kind of printing on it, the house when finished, shows a lot of advertisements for soap, oil and other things mixed up with the names of such places as London, Liverpool, and Glasgow.

Inside, one house is very much like another. There are two rooms, a living room and a bedroom. All windows are kept tightly shut, not so much to keep out the sun as the ghosts. The result is an unpleasant stuffiness but a pleasant feeling of security against spirit intrusions.

In one corner of the bedroom is a bed for father and mother. This is sometimes festooned with cheap muslin and a bright ribbon. The Negro loves gay things and there are always curtains, tied with ribbon, at the windows. Among the poorest these curtains may be nothing more than dirty lace rags but their owners are very proud of them. A wooden box makes a cradle for the baby and the rest of the children crowd together on a mattress. There are blankets for use when the nights are cold but often no bedclothes are needed.

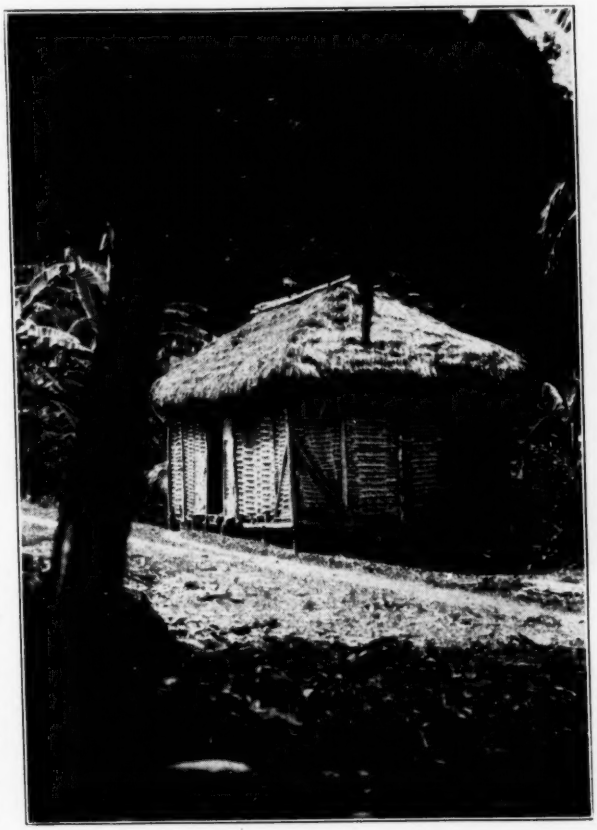

FIG. 4. A native hut in a banana plantation. Courtesy, The West India Committee

In the living room are all the family treasures. Colored pictures from magazines are pasted around the walls. Cheap, painted cups and saucers, bright beads and even a little doll may be piled on a small table as show things. Hanging on a nail is a long rope of black tobacco for father's pipe.

Round each hut is a garden where it is easy to grow almost all the vegetable food the Negro eats. The soil is just poked with a stick or slashed with a hoe and then planted. In the loose, rich

earth flourish small bananas that are to be eaten raw, big bananas called plantains, that are to be cooked, sugar cane, potatoes, Indian corn or maize, beans, melons, cassava (from which tapioca is made), and yams. The yam, which grows underground like a potato, is peeled, washed and boiled or baked like a potato, is as good as bread and is the chief food of the working man. Very little meat is eaten but salt fish is a common article of food.

Table manners are rather rough. The sound of chewing is louder than an American considers polite and the children mop up gravy with fingers that are afterwards sucked, or even clean their plates by licking every spot of food from them.

It is the mother who looks after the garden. She is a very busy, hard working woman. She rises at six and prepares the breakfast for her husband and children. When father has gone to work and the children have been sent off to school she goes, barefoot, to the well to draw the day's water supply. She may then go to the big house of some white person to work or collect a big bundle of washing. If there are none of these things to be done she toils in the garden. If it is marketing day in a nearby town she will fill a great basket with fruit and vegetables, balance it on her head, and go striding off to sell them. Sometimes her basket will weigh as much as 100 pounds and she will carry it ten miles.

Because these Negroes live in a land where there have been white people for a long time, they have learned to imitate these white people in a number of ways. This is particularly the case in the matter of clothing. It is true that very young children may run about, even in the streets of a town, without any clothes at all, but they wear a short cotton frock or a skirt when they are a little older. Their parents are always, more or less, dressed after a kind of white man fashion.

Father, at work, is clad in long cotton trousers distinguished by holes and patches, a faded cotton shirt and a floppy, battered straw hat. Mother has cotton frocks of bright colors and wraps her head in a handkerchief that is equally gaudy.

On Sundays, however, mother squeezes her feet into tight boots or shoes, dons a frock which is as near as she can get it to the latest fashion she has seen the white folk wearing, and sports a hat that is loaded with flowers and ribbons. Father armors himself in a tight jacket, a high collar, and swings a cane.

All this Sunday finery can be bought by selling a few loads

of produce from the garden or by working for a few days in a white man's plantation. All the money that the Negro can spare is spent on best clothes for Sunday.

The children, happy little things who are always showing their white teeth in a grin, are expected to go to school. This is a little square hut in the village with a black girl for a teacher. The pupils are not particularly fond of books or lessons and much prefer to climb trees or play in any available water: there is no need to bother about spoiled clothes. When they want to climb or swim they just take off their one little shirt and leave it on the ground. They stay away from school on any excuse and one country teacher has complained that her girl pupils lose a lot of time over the washing of a frock. They will stay away one day to wash it, another to dry it, and a third to iron it.

ORGANIZING A PRE-GEOGRAPHY VOCABULARY

EDNA A. COLLAMORE
Roosevelt School, Worcester

THE SETTING

Our school is a small bungalow in the middle of a two-acre lot. Six rooms, housing the elementary school grades, cluster around a large assembly hall which is used, mornings, by the kindergarten. This arrangement is ideal or the opposite according to your notion of what a school should be. If you love a quiet, scholarly atmosphere with hallways of dignified austerity and classrooms where a rapt and studious absorption prevails, you wouldn't like us very well. Visitors to our school are likely to be greeted in the morning by the clattering upset of large blocks, outbursts of laughter, and the rhythm of skipping feet, and, in the afternoon, by whatever has spilled over into the hall from some classroom, a group learning a song or a game, giving a play on the stage for another grade group, looking at lantern slides, or marching to the music of piano or victrola.

Among the advantages of the arrangement, however, is the closely knit organization it makes possible. We have no need of an inter-school telephone system. Everybody always knows what everybody else is doing. Everybody is thrillingly interested in everything everybody else is doing. Co-operation, mutual stimulation, emulation, participation, are demonstrated daily. Projects are as contagious as measles and every child is a carrier.

If the principal has an important message to convey she can assemble the school in thirty seconds, talk for two minutes, empty the hall in another thirty seconds. Minor holidays are often recognized by a fifteen to twenty minute assembly where each grade in turn occupies the stage for three minutes, and nobody seems to feel hurried, and nobody gets bored and wiggly. Decidedly, a central assembly hall makes integration so easy it is almost inevitable.

THE PROBLEM AS SOLVED

The project to be described started in this way. Grade Six and Grade Three, who had achieved one hundred per cent attendance for an eight day stretch, were invited to a showing of lantern slides in the hall. Among the views shown was one of a canal. "Grade

Three may tell us what this is." Silence. "It is a canal, Grade Three, an artificial waterway. What natural body of water is it like?" "The ocean?" "No." "A lake?" "No." "The sea?" "No." Silence. No grade three child suggested any appropriate name, as river, stream, creek, or brook. Something must be the matter. Grade Three must lack some very elementary geographic concepts and a taken-for-granted geography vocabulary.

In the Second Grade. The principal went into conference with the third grade teacher and the second grade teacher. "Would the children in the third grade be more intelligent in their geography reading if certain difficulties were at once cleared away?" "What should be the geography vocabulary of a second grade child?" The conference, armed with note-books and pencils, attacked a pile of Second Readers, and emerged with a list of some eighty geographic terms.

All, of course, were not of equal importance. Glen, glade, moor, might be disregarded as not especially significant. Other words were so close akin that but one needed emphasis. A physiographer may say that shore and coast are almost opposite in meaning, but seven year olds need not be so discriminating. At length a list of thirty words was chosen for intensive study.

For each of the more important words the teacher made a large chart on which eight or ten pictures could be displayed. The purpose of this was to generalize the concept. Underneath the word Mountain, for example, were pictures of widely varied mountains. The children began at once to voice comparisons. Some mountains had bare rocky tops while others were covered with trees. Some had snow caps when the rest of the picture said summer.

Such unmistakable things as lightning, skyscraper, fountain, road, street, marsh, were illustrated by single pictures mounted on generous sized cards and labelled with letters large enough to be read across the room.

As the picture collection increased the teacher laid aside many especially clear pictures for testing purposes. A typical test was this. Having given each child a hektographed list of a dozen geographic terms, the teacher showed a dozen new pictures, each bearing a number. The child's task was to write each number beside the appropriate word.

By this time every child wanted a book, his own book, filled with pictures he had collected and labelled himself. Pictures began to flood the room. Before-school activity was tremendous. "Is this a

good picture of a harbor?" "Here's an island somebody may have." "I'll swap this bridge picture for a meadow picture." One mite of a girl was seen consulting a list of words she had laboriously copied. "I'm crossing out the ones I have found," she explained, "so I'll know just what I must hunt for." Any such good idea was promptly adopted by others in the group.

Upon the sand table appeared a study of the nearby lake. One of the fathers, distressed by the irregularity of the bridge his seven year old son was constructing at home, made a wooden facsimile of the lake bridge and stuccoed it to make it look like cement. Toy automobiles arrived to travel over it. Toy boats were constructed to sail under it. Traffic became so congested that stop and go signals and "No Parking" signs were found necessary. A boat house and a wharf were built. Water lilies appeared on the lake. Waterfalls trickled into it. Grade Two was having a lovely time.

In the First Grade. What about Grade One? By this time their own geographic vocabulary, taken from primers and first readers, had been printed on cards and illustrated with beautiful colored pictures and was hanging about the room. Their sand table showed a nice little farm, neat and complete, with barn, house, silo, dog kennel, a fenced enclosure for sheep and cows, pigs about a trough, rabbits eating carrots, ducks on a pond, turkeys, hens and chickens, and all labelled with printed labels. The children had shellacked and painted their plasticine animals. They had constructed the buildings and covered the meadow with moss. Grade One was having fun, too.

In the Third Grade. How about Grade Three? Were they to be left out? You do not know them if you fancy that. They had examined their own books and made their own lists of geographic terms, surprisingly long lists. They proposed to make individual scrap-books wherein every term that they found should have its appropriate illustration. How bulky these books became! Neither teacher nor principal made any comments. Then, spontaneously, the children began to organize their findings. "I'm going to have a book of all kinds of boats." "I shall make a book of the seasons." "I'm not going to put anything into my book except people of different races."

About this time, by the way, a grade one pupil appeared with her individual note-book, forerunner of many. It was made of wrapping paper. She asked to have it labelled, "Travel Book." On the first page she pasted, appropriately enough, a baby carriage.

Now Grade Three began to draw on paper and on the blackboard pictures of harbors, cliffs, islands, volcanoes, straits and bays. They made these on the sand table. They had tests of various ingenious kinds. They wrote descriptions and played guessing games.

The very best pictures found by the class were donated to the class collection. Splendid colored pictures—a sandstorm, canal and locks, fog, an irrigation dam, fiords, dykes, jungles, deserts—were hung about the room.

The Grade Three course calls for journey geography. The journey they were taking led from the home city to the Arabian Desert. They were delighted to find on the journey the very things they had been studying about. New York Harbor with sky line, docks, big ships, and the Statue of Liberty, were ingeniously fitted into a big box cover—for the sand table had become a desert and there wasn't an inch of spare space in the room.

The journey led them thru the Strait of Gibraltar and the Suez Canal. As soon as these geography terms appeared attached to real place names, the children were eager to see the specific pictures. They pored over their geography readers, too. When a visitor asked the teacher if the geography text used was not too hard for them, they burst into a spontaneous peal of laughter. They thought that was a terribly funny question.

In Upper Grades. Of course grades four, five, six, are real geography grades. They had to have a part in the vocabulary study. Grade Four compiled a class book by copying geography definitions and finding appropriate illustrations. Grade Five decided to write their own definitions as a language exercise. They chose terms new to their grade, where North and South America are studied. Canyon, mesa, bad lands, are samples. They collected pictures and set to work deriving the definitions from the pictures. This is not a particularly easy task. "I thought mountain passes went thru valleys," said one eager youngster, "but here is one winding around a mountain and another going almost directly over a mountain." The definition selected by the class was this: A mountain pass is a road or a path that leads from one side of a mountain to the opposite side. It was, of course, not fair to consult dictionaries or geographies before the definitions had been formulated and voted upon.

Grade Six made a class vocabulary book with definitions and pictures and then insisted that they needed and really must have individual books. Some of the terms they selected came from mathe-

matical geography and could be easily illustrated by diagrams. When they found magazines that contained pictures they particularly coveted they bought duplicates from second hand dealers. Of course magazine advertisements and direct advertising material furnish many highly prized illustrations.

Other geography work was going on at this time in all grades above the third, but the vocabulary project itself aroused enough interest to attract two hundred and seventy-five visitors in two weeks to our somewhat out-of-the-way schoolhouse.

In the Kindergarten. After the grades had all had a splendid time visiting each other, the kindergarten begged to be taken on a tour of inspection, too. On their return they became very busy. A lake and a bridge appeared. A long road stretched across the hall, fenced on both sides and provided with many mail boxes. One little girl drew a map of the city with an outline not too unlike one she had seen in Grade Four. "This is my house in this corner," she said. "Your house in that corner. This road," she pointed to a tangle of lines, "leads from my house to your house." Yes, truly, a freely organized project will function in every corner of a well-arranged small schoolhouse.

SPECIFIC BENEFITS OF RELATIONSHIP TEACHING

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The "How to Teach It" series in the JOURNAL is proving of great benefit to geography teachers from the elementary grades to college. Most of the articles so far have emphasized the relationship method of teaching geography. The writer feels that the correctness of that method of teaching has already been ably presented. This article is an attempt to summarize and illustrate some of the specific benefits of such a method.

1. Relationship presentation of geography gives a standard method for teaching the subject at any level from the fourth grade thru college.

In the past many colleges gave courses in, "Teaching of Geography in Elementary Schools," and "Geography Method Course for High School Teaching." Some colleges and universities still offer such courses. They fail to realize that in geography it is subject matter, not teaching method, that should vary at different levels. The study of Brazil will serve as an excellent example. Elementary students will work out fewer and less difficult, but important, relationships in studying Brazil. College students may, if they have a good elementary background, work out more intricate relationships and review relationships learned at elementary level by adding new fact material to them.

2. Relationships serve as an admirable skeleton about which facts may be built into retainable form.

Since relationship teaching has been developed and generally adopted, many teachers have been at a loss to know where to introduce fact material. Many geographers fear that, not knowing how to fit facts into the relationship method, too many teachers have left out facts altogether. This omission is a serious and unnecessary mistake. In working out a relationship about coffee production in Brazil one may add facts in such a manner that they will be associated with the relationship. Coffee production is of great importance in Brazil—introduce such facts as, production, percentage of world production, etc.; railway transportation to coffee shipping ports—introduce ownership of railways, fuel problem, importance of Santos, Sao Paulo and other facts that fit the level at which you are teaching; big middle latitude markets—here give chief markets,

percentage to United States, etc., according to level of students; —fertile soil—according to level chosen facts as iron content, potash, original rock, worn down mountains, may be presented; rolling topography—effect of drainage on coffee tree growth.

3. Unit study by the problem method is easily promoted by relationship teaching.

Logically, most problems in the introduction of a unit come from a map or picture, and concern the explanation of population distribution or some particular product. Students, if led by the teacher, will state problems as part of the cultural side of a relationship. From a population map they will wonder "why the densest population of Brazil is in the southeastern part of the country." This part of the problem may be used as the beginning of a relationship. Students may wonder from a picture along the Amazon "why the people wear few clothes." This starts a good relationship and helps to state the problem.

4. Relationships help the teacher to promote pupil activity.

Most teachers now agree that the best way to maintain student interest is to let them work things out for themselves. In the problem—"Why do people along the Amazon wear few clothes?" the teacher may, by suggesting readings, maps and pictures, lead the student to answer the problem for himself.

5. Proper use of outside readings, pictures, maps and statistics may be more easily accomplished by relationship teaching.

The above sources of material are only properly used as outside assignments when the student is given something definite to get from them. In the case of elementary students being given an outside reading assignment the teacher may say "Find five relationships on page 31," or "Find all statements you can to help explain the problems worked out in class today." In the use of pictures and maps one good assignment is "Before next class meeting find all suggestions you can as to what man does for a living, from the maps and pictures on pages 32 and 33." Instructions need not be as definite for higher levels, still, some suggestion of what to find is necessary.

6. Relationships offer the student a short and effective means of note taking, a great help to the effectiveness of the teacher's work.

From the teacher's lecture, outside readings, field study, or class discussion the shortest and clearest form of note taking is the relationship. This includes all outstanding information and serves as a basis for recalling statistics, discussion in class, etc., to the student's mind.

EDITORIAL NOTES AND NEWS

The Annual Meeting of the National Council of Geography Teachers will be held December 28-30 at Northwestern University. Headquarters will be at the Georgian Hotel. The program promises to be of intense interest and every progressive teacher should plan to attend. Further details concerning the meeting will be found in the JOURNAL for November, pages 338, 345.

DR. ROBERT G. BUZZARD, formerly head of the Department of Geography at the State Teachers College at Normal, Illinois, has been made President of the Teachers College at Charleston, Illinois. H. O. Lathrop of the geography department of the Teachers College at Whitewater, Wisconsin, takes the position vacated at Normal.

DR. O. D. VON ENGELN gave a lecture on "The Place of the Earth Sciences in an Education" before the Science Division of the Western Zone, New York State Teachers Association, held at Buffalo on November 3. About two hundred people were in attendance.

The Department of Geography of the University of Michigan announces the publication of Volume III of Michigan Papers in Geography. The publication may be secured from R. B. Hall of the Department of Geography, University of Michigan, Ann Arbor. The publication is also available on exchange for other geographical publications.

The two billion dollar annual damage to growing plants in this country caused by insects has led to widespread interest in the development of some new and effective insecticides, according to Dr. H. G. Knight of the U. S. Department of Agriculture. One of the most promising, which is harmless to man and domestic animals, is rotenone. This chemical is obtained from derris, a woody vine cultivated in Malaya, and in cubé, a South American shrub. The only known American plant to contain this drug is the "devil's shoestring," Cracca virginiana. Since it thrives on infertile sandy soil, tests are being made to determine its suitability for submarginal land unsuited for other crops.

The first series of the Grant Memorial Lectures was delivered in November at Northwestern University by Dr. W. H. Collins, Director of the Geological Survey of Canada. He lectured on "The Economic Future of Northern Canada," "Major Correlational Problems of the Great Lakes," and "The Sudbury Mining Field." This Memorial has been made possible by contributions from friends of the late Professor U. S. Grant, former head of the Department of Geology and Geography at Northwestern University, in commemoration of his distinguished services to the earth sciences and to Northwestern University which he long served as scientist, teacher, and administrator.

The Committee on Cultural Relations with Latin America, Inc., announces the third annual Seminar in the Caribbean to be held in Cuba from March 7 to 14, 1934. This seminar is designed to bring its members into contact with the plans, projects, and beliefs of the leaders of all sectors of opinion in the country. The faculty includes Dr. Ernest Gruening, Miss Elizabeth Wallace, Dr. Chester Lloyd Jones, and Mr. Hubert C. Herring. For further information write to the Committees' headquarters at 112 East 19th Street, New York City.

At the request of the Mexican Government the United States Government has ruled that all official mail sent to the Capital of Mexico shall no longer be designated Mexico City, but Mexico, D.F. The D.F. stands for Distrito Federal. The Federal District has an area of 578 square miles, more than 8 times that of our own District of Columbia. The City of Mexico has a population of over 600,000 but can boast a million including the suburban population in the Federal District. Tho the city is perched about a mile above sea level it was not until 1900 after centuries of toil and study that the area was safe from lake overflows. The diking and draining program centering in the completion of the 30-mile Canal del Desagüe is worthy of comparison with some of the world's greatest hydraulic engineering feats. A new 1200 mile pipe line will carry Iraqian and Persian oil to the Mediterranean ports, Tripoli, in the French Mandate, and Haifa, which is Palestine's best harbor.

In past issues of the JOURNAL, mention has been made of the highway which is to connect Venezuela, Colombia, and Ecuador for which the name, Simón Bolívar Highway, has been proposed. Venezuela's part which extends from La Guira thru Caracas to the Colombian border has been completed. The Colombian part cuts across the mountains to Bogotá via Cúcuta. From Bogotá the highway reaches Cali, south of which it is to follow the proposed Pan-American Highway. The 400 mile link in this latter part that connects Quito to Popayan has recently been graded and opened to the public. The last section connects Quito with its seaport, Quaqaquil. Not only does the highway open vast regions of great mineral and agricultural wealth, but it is replete with historical associations centered about the period of Spanish Conquest and the subsequent part played by the great liberator, Simón Bolívar, in freeing this port of South America from Spain.

According to press notices, the U.S.S.R. balloon Stratostat in early October made a new world's altitude record of 11.8 miles, breaking that of 10.7 miles held since August, 1932, by Professor Piccard. The Soviet balloonists reported the stratosphere to have a soft deep violet hue, a region of fair weather. Many scientists are wondering if the stratosphere with its freedom from clouds, precipitation, and vertical air currents will prove to be the future world's commercial flying lane.

Our national forests have an area of over 162 million acres according to Forest Service, U. S. Department of Agriculture. Nearly three-fourths of a million acres were added during the last fiscal year to the existing forests and to the creation of the Nicolet National Forest in Wisconsin. Two changes in names are noted. The Crater National Forest in Oregon has been renamed the "Rogue River," and the California National Forest in California has been renamed the "Mendocino." Not only are many of these forests on a self-supporting basis thru the sale of timber, the rental of grazing lands, the leasing of water power sites, and the provision afforded for water supply, but the Forest Service has been quick to make these forests serviceable because of their recreational possibilities.

The Nebraska Chapter of the National Council of Geography Teachers announces in its October Bulletin a number of geography programs to be given in connection with different district meetings of the State Teachers Associations. This Bulletin, No. 1, Vol. VIII, contains a practical discussion on the way to teach latitude and longitude to fifth grade children. The article is contributed by Eleanor Swanson, Critic Teacher of Nebraska Wesleyan Training School. A year's subscription to the Bulletin is a very nominal sum.

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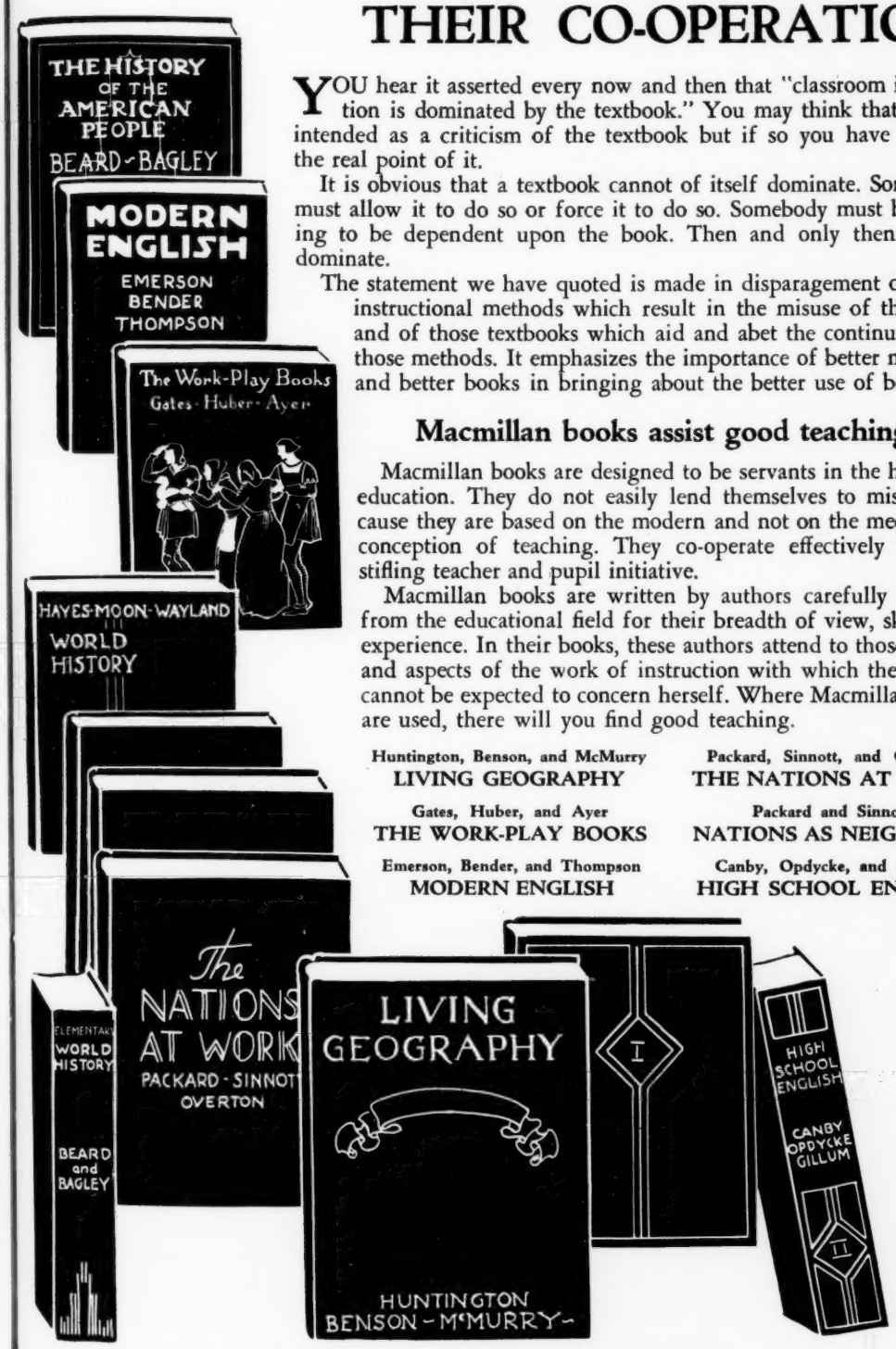

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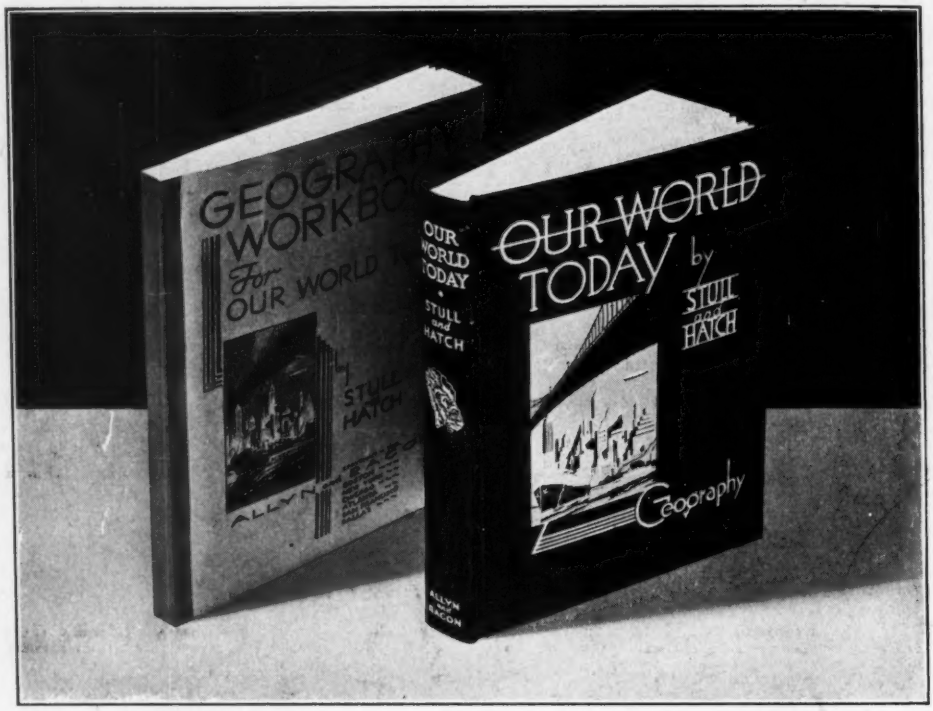

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